**How to use the Primary Coding Club Box**

The Primary Coding Club Box is meant to be used in an afterschool setting to educate students about computer science, more specifically, computer coding. You are welcome to differentiate your teaching based on your students’ needs.

Be creative, have fun!

**Items included in the Primary Coding Club Box:**

* Coding Curriculum
* Robot Turtles
* Ozobot Bits
* Squishy Circuits
* Books
* Pencil boxes with Expo markers

**Coding Curriculum**

Teachers must create an account for students before they begin. It is recommended that primary students use the picture option as their password. More information on creating student accounts can be found in the Quick Guide folder in Blackboard.

Students do not need to go through every lesson provided in the Scope and Sequence. Students can stop in the middle of lessons and their progress will be saved. They can then go back in to their account to finish the lesson, or move on to a different lesson.

The most pertinent lessons include:

* Lesson 1-Stage 1: Graph Paper Programming
* Lesson 3-Stage 3: Lesson Sequence (This lesson can become long and tedious, students do not need to go through each puzzle)
* Lesson 4-Stage 4: Artist: Sequence
* Lesson 6-Stage 6: Maze: Loops
* Lesson 8-Stage 8: Bee: Loops
* Lesson 10-Stage 10: Debugging
* Lesson 13-Stage 13: Bee Conditionals
* Lesson 14-Stage 14: Binary Bracelets
* Lesson 16-Stage 16: Flappy
* Lesson 17-Stage 17: Play Lab: Create a Story
* Lesson 18-Stag 18: Your Digital Footprint

**Robot Turtles**

This board game teaches the basics of programming and computer coding by guiding paper turtles to the gems in the middle of the board.

By playing this game, students learn the term "sequence" and begin to become familiar with basic coding language such as, "move forward," "turn right," and "turn left." Students problem solve and use code cards to get to the gems in the middle of the board. Once students reach their goal, they verbally state their programming sequence to the group.

After students master the initial rules of the game they can progress to more difficult versions of the game.

This game is a great introduction to understanding computer coding and terminology before using the computer to code.

**Ozobot Bits**

These small robots teach coding in multiple ways. For introductory purposes, students can code the robot by drawing thick lines on paper or a tablet with a drawing program. The robots follow the lines and light up to correspond to the colors.

After students have mastered coding with lines, they can use the Ozobot-OzoCodes-Reference document to code the robots using color sequences.

Students can also program the robot with a computer or iOS/Android tablet using blockly coding. This step is recommended once students have become familiar with using blockly coding, as taught in the Coding Curriculum.

Lessons, codes, games, and mazes can be found online at <http://www.ozobot.com/>

**Squishy Circuits**

Students learn the basics of computer circuitry and electricity through insulating and conductive dough, and LED lights. This activity is useful when explaining what happens inside a computer.

Use this activity at any time.

To make insulating dough, follow this link: <http://courseweb.stthomas.edu/apthomas/SquishyCircuits/conductiveDough.htm>

To make conductive dough, follow this link: <http://courseweb.stthomas.edu/apthomas/SquishyCircuits/insulatingDough.htm>

It is recommended that the teacher prepare the dough ahead of time as the conductive dough requires use of the stove.

The LED lights will not light up if two pieces of conductive dough are touching. This causes a "short circuit." By separating the conductive dough with a piece of insulating dough the electricity will create a loop called a "circuit" and will cause the LED to light up. If the LED does not light up after inserting the insulating dough, turn the LED light around so that the short prong was once where the long prong was and vice versa.

Do not touch the LED to the battery terminals or the LED will burn out.

Always turn off and take out batteries after use.

**Books**

Students often would like to learn more than what is presented in a lesson. Students can either read the provided books on their own, or the teacher can read the books to the students. The books can also be used as a reference tool.

Use the books at any time.